

REMARKS

Claims 1-10 remain pending in the present application. Claims 1-3 have been amended. Claims 4-10 are new. Basis for the amendments and new claims can be found throughout the specification, claims and drawings originally filed.

DOUBLE PATENTING

Claims 1-3 are rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over Claims 1-34 of U.S. Pat. No. 6,438,993. Applicants respectfully traverse this rejection by the Examiner. The part of U.S. Pat. No. 6,438,993, which is most relevant to the limitations of Claims 1-3, is recited in column 10, lines 55-62. That is, U.S. Pat. No. 6,438,993 teaches that when a thermal load of the ejector cycle system increases, the opening degree of the valve 454 is increased to increase the refrigerant flow flowing into the nozzle group 440, and when the thermal load of the ejector cycle system decreases, the opening degree of the valve 454 is decreased to decrease the refrigerant flow flowing into the nozzle group 440. However, this feature is not recited in Claims 1-34 of U.S. Pat. No. 6,438,993 and thus it cannot be used as the basis of an obviousness-type double patenting rejection. Furthermore, the above relevant part of U.S. Pat. No. 6,438,993 fails to teach use of the predetermined value of the heat load, i.e., a threshold value of the heat load in the control operation of the refrigerant flow and also fails to teach coinciding of the flow rate of refrigerant, which passes through the nozzle arrangement, with the second target value when the heat load is less than the predetermined value. Thus, in U.S. Pat. No. 6,438,993, a sufficient amount of refrigerant may not be circulated to the compressor

when the heat load is less than the predetermined value. The system described in Figures 10A and 10B is similar to that described for Figures 11A and 11B except that Figures 10A and 10B vary the number of active nozzles 410 instead of adjusting a single valve 454 in Figures 11A and 11B.

Claim 1 of the present invention recites that when a heat load is equal to or greater than a predetermined value, the degree of throttle opening of the nozzle arrangement is controlled in such a manner that a coefficient of performance coincides with a first target value; and when the heat load is less than the predetermined value, the degree of throttle opening of the nozzle arrangement is controlled in such a manner that a flow rate of refrigerant, which passes through the nozzle arrangement, coincides with a second target value. The above limitations of Claim 1 are not believed to be obvious over Claims 1-34 of U.S. Pat. No. 6,438,993 since none of Claims 1-34 of U.S. Pat. No. 6,438,993 teaches or suggests the control of the degree of throttle opening of the nozzle arrangement with reference to the predetermined value of the heat load. U.S. Pat. No. 6,438,993 teaches the control of fluid flow to the nozzle not the control of the degree of throttle opening.

Claim 2 of the present invention recites that when a heat load is equal to or greater than a predetermined value, a flow rate of refrigerant discharged from the compressor is controlled in such a manner that a coefficient of performance coincides with a first target value; and when the heat load is less than the predetermined value, the flow rate of refrigerant discharged from the compressor is controlled in such a manner that a flow rate of refrigerant, which passes through the nozzle arrangement, coincides with a second target value. The above limitations of Claim 2 are not believed

to be obvious over Claims 1-34 of U.S. Pat. No. 6,438,993 since none of Claims 1-34 of U.S. Pat. No. 6,438,993 teaches or suggests the control of the flow rate of refrigerant discharged from the compressor with reference to the predetermined value of the heat load. U.S. Pat. No. 6,438,993 teaches the control of fluid flow to the nozzle not the flow rate of refrigerant discharged from the compressor.

Claim 3 of the present invention recites that when a heat load is equal to or greater than a predetermined value, a degree of opening of the flow rate control valve is controlled in such a manner that a coefficient of performance coincides with a first target value; and when the heat load is less than the predetermined value, the degree of opening of the flow rate control valve is controlled in such a manner that a flow rate of refrigerant, which passes through the nozzle arrangement, coincides with a second target value. The above limitations of Claim 3 are not believed to be obvious over Claims 1-34 of U.S. Pat. No. 6,438,993 since none of Claims 1-34 of U.S. Pat. No. 6,438,993 teaches or suggests the control of the degree of opening of the flow rate control valve with reference to the predetermined value of the heat load. In addition, U.S. Pat. No. 6,438,993 does not teach or suggest the flow rate control valve, which controls the flow rate of refrigerant supplied from the gas-liquid separating means to the low pressure side heat exchanger. U.S. Pat. No. 6,438,993 teaches the control of fluid flow to the nozzle not the control of fluid flow from the gas liquid separator to the low pressure heat exchanger (evaporator).

Thus, Applicants believe Claims 1-3 patentably distinguish over the art of record. Reconsideration of the rejection is respectfully requested.

NEW CLAIMS

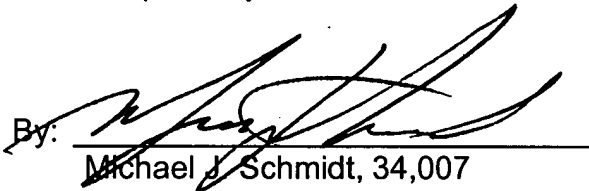
New Claims 4-10 are dependent claims depending from one of Claims 1-3 which further define features of the present invention and are thus believed to be allowable.

CONCLUSION

It is believed that all of the stated grounds of rejection have been properly traversed, accommodated, or rendered moot. Applicants therefore respectfully request that the Examiner reconsider and withdraw all presently outstanding rejections. It is believed that a full and complete response has been made to the outstanding Office Action, and as such, the present application is in condition for allowance. Thus, prompt and favorable consideration of this amendment is respectfully requested. If the Examiner believes that personal communication will expedite prosecution of this application, the Examiner is invited to telephone the undersigned at (248) 641-1600.

Respectfully submitted,

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